

EXHIBIT B

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF TENNESSEE
NASHVILLE DIVISION

INDIANA PUBLIC RETIREMENT SYSTEM,)
Individually and on Behalf of All Others)
Similarly Situated,)

Plaintiff,)

vs.)

Civil Action No. 3:19-cv-00407

MICHAEL T. CARTWRIGHT, KIRK R.)
MANZ AND ANDREW W. MCWILLIAMS,)

Defendants.)
)

EXPERT REPORT OF
W. SCOTT DALRYMPLE, CFA
JULY 6, 2021

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Re: Indiana Public Retirement System, Individually and on Behalf of All Others Similarly Situated ("Plaintiff")
v. Michael T. Cartwright, Kirk R. Manz and Andrew W. McWilliams (collectively, "Defendants")

I. Scope of the Engagement

1. I have been retained by Robbins Geller Rudman & Dowd LLP, counsel for Plaintiff in the above-styled case, to analyze whether AAC Holdings, Inc. ("AAC") stock traded in an efficient market during the period between March 8, 2017 and November 5, 2018 (the "Class Period"). I have also been retained to determine whether damages in this matter can be calculated using a common methodology for all Class members pursuant to their claims.

2. Generally, I understand Plaintiff alleges that Defendants engaged in a scheme to defraud and made numerous materially false and misleading statements and omissions to investors regarding AAC's business and operations, including misrepresentations and omissions regarding risks associated with AAC's sales and marketing operations; allowances for doubtful accounts and bad debt expense; and compliance with relevant regulatory requirements such as conformity with U.S. GAAP.

3. Defendants' scheme to defraud and materially misleading statements, according to Plaintiff, caused the price of AAC stock to be artificially inflated during the Class Period.

II. Credentials and Compensation

4. I, W. Scott Dalrymple, am a Partner at BVA Group LLC ("BVA Group"). I am an economist and a CFA charter holder with extensive experience in economic, financial, and statistical analyses. During my career, I have worked on issues relating to the analysis of economic damages involving securities litigation, business valuation, structured finance, financial derivatives, antitrust, intellectual property and breach of contract. I have advised companies, investors, financial institutions, and government agencies in the U.S., Europe and Australia on a range of matters, including valuation and securities analysis, market structure, capital restructurings, financial and economic modelling and quantitative methods.

5. I have been retained as a consulting and testifying expert in a wide range of matters involving financial markets and securities, including equities, fixed income, structured products, and derivatives. I have been involved in shareholder class action matters in the US and Australia on issues related to share price inflation, market efficiency and shareholder damages. I have provided expertise on numerous litigation matters involving financial, economic, statistical, and valuation analysis.

6. I hold a Master of Science in economics with a concentration in Industrial Organization from the London School of Economics and Political Science and a Bachelor of Business Administration in the Business Honors Program and Finance from the University of Texas at Austin. I have written about and presented on economic and financial topics, including financial markets and securities analysis, and have provided expert opinions on these topics in a number of federal court, state court, and arbitration proceedings. My full curriculum vitae, including testimony history and publications, is attached as **Appendix A**.

7. BVA Group is being compensated at the rate of \$700 per hour for my work in this matter. As part of performing my analysis, I utilized a team of BVA Group personnel who worked under my direction and supervision. BVA Group is being compensated for time incurred by other professionals who have supported my analysis in this matter at rates of \$250 to \$600 per hour. Neither BVA Group's nor my compensation depends on opinions provided herein or on the outcome of this litigation.

III. Information Considered

8. I have prepared this report to state my expert opinions; to describe the bases for those opinions; to disclose the facts and data I considered in reaching my opinions; and to make other appropriate disclosures.¹ The work that I conducted in this matter has been informed by my education, knowledge, and experience in economics and finance. The information in this report is based upon discovery to date and the information that is currently available. A listing of the materials I have considered in my work for this matter as of the date of this report is contained in **Appendix B**, as well as the citations presented in this report.²

9. I may review, evaluate, and analyze additional data, facts, or information as they become available. I reserve the right to amend or supplement my opinions based upon further information learned, produced, or provided to me. Therefore, the analyses and opinions described herein may be subject to change based upon additional information that becomes available or other developments that occur.

IV. Summary of Opinions

10. It is my opinion that shares of AAC traded during the Class Period in a semi-strong-form efficient market in which new information was reflected in the share price.

11. In a semi-strong efficient market, one may apply an event study in conjunction with other generally accepted methods to estimate the share price inflation, if any, that was attributable to, or was

¹ Use of the first person "I" in my report refers either to me or to those working under my direct supervision.

² In addition to documents referenced in this report and attached appendices, I relied on my education, background, skills, and experience, including a body of knowledge derived from numerous other treatises and case law not specifically identified herein.

maintained by, Defendants' alleged scheme and/or misrepresentations and omissions throughout the Class Period. The share price inflation may be used, along with other widely accepted financial and economic methods, to arrive at damages for every member of the proposed class using a common technique that is grounded in Plaintiff's theory of liability.

V. Background

A. The Class

12. I understand that the proposed Class in this matter are persons or entities who acquired AAC securities between March 8, 2017 and November 5, 2018, inclusive.

B. Defendants

13. It is my understanding that Defendants are current and former officers of AAC who have served in the following roles:

- a. Mr. Cartwright served as AAC's Chief Executive Officer ("CEO") beginning in June 2013.³
- b. Mr. Manz served as AAC's Chief Financial Officer ("CFO") from January 2011 until December 2017.⁴
- c. Mr. McWilliams served as AAC's CFO beginning in January 2018 and as AAC's Chief Accounting Officer from August 2014 and December 2017.⁵

C. AAC Holdings, Inc.

14. AAC is a for-profit, publicly-traded healthcare company headquartered in Brentwood, Tennessee.⁶ During the Class Period, AAC provided inpatient and outpatient substance use treatment services for individuals with drug addiction, alcohol addiction, and co-occurring mental/behavioral health issues.⁷ As of December 31, 2017, AAC operated 9 residential substance abuse treatment, 19 standalone outpatient centers, and 5 sober living facilities.⁸

³ Consolidated Complaint for Violations of the Securities Exchange Act of 1934, Nov. 4, 2019 ("Consolidated Complaint"), ¶ 15.

⁴ Consolidated Complaint, ¶ 16.

⁵ Consolidated Complaint, ¶ 17.

⁶ Capital IQ.

⁷ AAC Form 10-K for period ending Dec. 31, 2017, p. 4.

⁸ AAC Form 10-K for period ending Dec. 31, 2017, p. 4.

15. During the Class Period, AAC traded under the ticker symbol “AAC” on the New York Stock Exchange (“NYSE”).⁹ On October 25, 2019, AAC was notified that trading in the company’s stock would be suspended and that the NYSE had determined to commence delisting proceedings with the SEC.¹⁰ On June 20, 2020, the company filed for Chapter 11 bankruptcy.¹¹

D. Allegations

16. I understand Plaintiff alleges that Defendants violated SEC Rule 10b-5 and §§10(b) and 20(a) of the Securities Exchange Act of 1934.¹²

17. Between March 8, 2017 and April 15, 2019, Plaintiff alleges that Defendants engaged in a scheme to defraud and made misrepresentations in public statements, financial releases and conference calls regarding the (i) methodology used in determining its allowance for doubtful accounts and bad debt expense and compliance with relevant regulatory compliance and (ii) risks associated with AAC’s sales and marketing operations.¹³ The Court summarized Plaintiff’s allegations as follows:

Plaintiff’s “‘Restatement Claim’ [which] asserts that Defendants made false and misleading statements about AAC’s accounts receivable, leading to false financial statements that were ultimately revealed to investors through AAC’s Restatement of its financial results for fiscal years 2016 and 2017 and the first three quarters [of] 2018.”

Plaintiff’s “‘Marketing Claim’ [which] alleges that Defendants engaged in a fraudulent and deceptive sales and marketing scheme and made false and misleading statements related to AAC’s sales and marketing practices that were revealed to investors as the industry and Congress began to investigate and cast light upon such deceptive practices.”

Plaintiff’s “Section 20(a) claims, [which] . . . contend that the individual Defendants, as ‘controlling persons’ of AAC, violated Section 20(a),” i.e., they are “liable jointly and severally with and to the same extent as such controlled person.”¹⁴

18. I understand Plaintiff has identified certain dates on which information became available to market participants that corrected Defendants’ alleged misrepresentations and omissions, or otherwise revealed the extent of the risks concealed by Defendants’ alleged scheme.¹⁵

19. On November 6, 2018 (before market open), AAC issued a press release titled “AAC Holdings, Inc. Reports Third Quarter 2018 Results.”¹⁶ This press release reported third quarter revenue of \$77.5

⁹ AAC Form 10-K for period ending Dec. 31, 2017, p. 30.

¹⁰ AAC Form 8-K dated Nov. 4, 2019.

¹¹ See, e.g., *In re: AAC Holdings, Inc., et al.*, Case No. 20-11648-CTG, Voluntary Petition for Non-Individuals Filing for Bankruptcy.

¹² Consolidated Complaint, ¶¶ 165-178.

¹³ Consolidated Complaint, ¶¶ 63-127.

¹⁴ Memorandum Opinion dated April 8, 2021, pp. 2-3 and 37.

¹⁵ Consolidated Complaint, ¶¶ 128-138.

¹⁶ Consolidated Complaint, ¶ 129; AAC Form 8-K and accompanying press release dated November 6, 2018.

million and an adjusted loss per diluted common share of \$0.08 citing decline in call volume and lower census as drivers of underperformance.¹⁷ The same release also stated that AAC was lowering its FY 2018 adjusted earnings guidance from \$0.75 -\$0.80 to (\$0.15)-(\$0.10) per diluted share.¹⁸

20. AAC hosted an earnings call that day, in which Mr. Cartwright discussed the company's sales and marketing challenges, including the impact of changes in Google's search algorithms on its website traffic and corresponding reduction in call volumes.¹⁹ Mr. McWilliams also discussed the company's financial results, including the impact of revenue recognition changes and estimates of accounts receivable collectability on revenue and earnings.²⁰

21. On November 6, 2018, AAC's share price closed down by \$2.35 (44.3 percent), falling from \$5.31 on the previous day to \$2.96.²¹

22. On April 16, 2019 (before market open), AAC issued a press release titled "Fourth Quarter 2018 Operational and Financial Highlights."²² This press release reported fourth quarter 2018 revenues of \$57.4 million and EBITDA of negative \$12.4 million, falling below market consensus expectations.²³ In addition to historical financial results (which the company also had provided in its 10-K on the previous day), the press release also provided financial guidance for 2019.²⁴

23. On the AAC earnings call hosted on the same day, Messrs. Cartwright and McWilliams discussed various topics including the accounting changes for the current period, the restatement of previous financial statements, the impact of the Google algorithm update, marketing strategies for the coming year, cost-saving initiatives and their impact on earnings, plans for the real estate portfolio, advertisement spend, admissions and census expectations, and revenue metrics.²⁵

24. On April 16, 2019, AAC's share price closed down by \$0.40 (18.7 percent), from falling from \$2.14 on the previous day to \$1.74.²⁶

¹⁷ Consolidated Complaint, ¶ 129; AAC Form 8-K and accompanying press release dated November 6, 2018.

¹⁸ Consolidated Complaint, ¶ 129; AAC Form 8-K and accompanying press release dated November 6, 2018; AAC Form 8-K and accompanying press release dated August 1, 2018.

¹⁹ AAC Holdings, Inc.Q3 2018 Earnings Conference Call hosted November 6, 2018.

²⁰ AAC Holdings, Inc.Q3 2018 Earnings Conference Call hosted November 6, 2018.

²¹ Data from Bloomberg LP.

²² AAC Form 8-K and accompanying press release dated April 16, 2019.

²³ Consolidated Complaint, ¶ 134.

²⁴ AAC Form 8-K and accompanying press release dated April 16, 2019.

²⁵ AAC Holdings, Inc.Q4 2018 Earnings Conference Call hosted April 16, 2019.

²⁶ Data from Bloomberg LP.

VI. Assessment of Market Efficiency

25. It is my understanding that, in order to invoke the “fraud on the market” presumption of reliance, courts have required (among other things) that the plaintiff establish that the security was traded in an efficient market during the relevant period.²⁷

26. It is widely accepted that prices of shares traded on major exchanges such as the NYSE respond to new value-relevant information; that is, such markets are informationally efficient with respect to publicly available information. As prominent academics have noted, “economists generally agree that material information—whether truthful or fraudulent—will generally affect the price of a stock and that the effect will be in a predictable direction.”²⁸

27. According to the efficient market hypothesis (“EMH”), in an efficient market, the price of an investment reflects all available information in the market. The economic literature identifies three forms of the EMH:²⁹

- a. The weak form suggests that all information contained in past prices is incorporated in the current price of a traded asset.
- b. The semi-strong form of the efficient market hypothesis states that all publicly available information is reflected in the price of a traded asset.
- c. The strong form of market efficiency suggests that all public and private information is incorporated in the price of a traded asset.

28. A finding that shares trade in a semi-strong-form efficient market indicates that the prices of those shares incorporate new, value-relevant public information about the issuer.³⁰ Consistent with this principle, I understand that courts have considered evidence that a security traded in a market characterized by the semi-strong form of the EMH as a basis to invoke the “fraud on the market” presumption with respect to that security in the context of securities litigation.³¹

²⁷ *Basic Inc. v. Levinson*, 485 U.S. 224, 245-46 (1988) (“Basic”); *Halliburton Co. v. Erica P. John Fund, Inc.*, 573 U.S. 258, 277-78 (2014) (“Halliburton II”).

²⁸ Brief of Financial Economists as Amici Curiae in Support of Respondents, *Halliburton II*, 2014 WL 526436, at *13-14 (U.S. Feb 5, 2014).

²⁹ Eugene F. Fama, “Efficient Capital Markets: A Review of Theory and Empirical Work,” *The Journal of Finance*, 25(2), May, 1970; Papers and Proceedings of the Twenty-Eighth Annual Meeting of the American Finance Association New York, N.Y., Dec. 28-30, 1969, pp. 383-417. See also, John Campbell, et al., *The Econometrics of Financial Markets* (1997), p. 22.

³⁰ For the purposes of this discussion, general references to market efficiency refer to the semi-strong form unless otherwise noted.

³¹ *Basic*, 485 U.S. at 245-46; John Campbell, et al., *The Econometrics of Financial Markets* (1997), p. 22.

29. Practitioners and courts have found that shares of large companies traded on major exchanges generally trade in semi-strong form efficient markets.³² Throughout the Class Period, AAC traded on the NYSE, self-described as "...a leading global cash equity exchange [and] the leading equity exchange for initial public offerings, or IPOs, globally..."³³

30. I understand that courts regularly consider the five factors set forth in *Cammer v. Bloom* in assessing market efficiency.³⁴ These five factors are:

- a. average weekly trading volume relative to outstanding shares;
- b. number of analysts following the stock;
- c. market maker and arbitrage activity;
- d. ability to issue new securities through an S-3 registration statement; and
- e. empirical facts showing a cause-and-effect relation between unexpected corporate events or financial releases and stock price movement.

31. In addition to the factors outlined in *Cammer*, I understand that courts have considered additional factors relevant in demonstrating the efficiency of a market, including:

- a. market capitalization and float;³⁵
- b. bid-ask spread;³⁶
- c. presence of autocorrelation in stock price returns;³⁷ and
- d. constraints on short selling.³⁸

32. Each of these factors is considered below.

³² See, e.g., *Todd v. STAAR Surgical Co.*, 2017 WL 821662, at *6 (C.D. Cal. Jan. 5, 2017) (quoting *Freeman v. Laventhol & Horwath*, 915 F.2d 193, 199 (6th Cir. 1990) ("[I]t appears that securities traded in national secondary markets such as the New York Stock Exchange ... are well suited for application of the fraud-on-the-market theory. The high level of trading activity ensures that information from many sources is disseminated into the marketplace and consequently is reflected in the market price. This is the premise upon which the fraud on the market theory rests."); *Todd v. STAAR Surgical Co.*, 2017 WL 821662, at *6 (C.D. Cal. Jan. 5, 2017) (quoting *Oran v. Stafford*, 226 F.3d 275, 282 (3d Cir. 2000) (describing the NYSE as "open and developed [where] the price of a company's stock is determined by all available material information regarding the company and its business")); See also, Brief of Testifying Economists as *Amici Curiae* in Support of Respondent, *Halliburton II*, 2014 WL 507164, at *7-8 (U.S. Feb. 5, 2014).

³³ Intercontinental Exchange, Inc Form 10-K for period ended Dec. 31, 2020, p. 3.

³⁴ *Cammer V. Bloom* ("*Cammer*"), 711 F. Supp. 1264 (D.N.J. 1989).

³⁵ *Krogman v. Sterritt* ("*Krogman*"), 202 F.R.D. 467, 477-78 (N.D. Tex. 2001); *Unger v. Amedisys Inc.*, 401 F.3d 316, 323 (5th Cir. 2005).

³⁶ *Krogman*, 202 F.R.D. 467, 477-78 (N.D. Tex. 2001); *Unger v. Amedisys Inc.*, 401 F.3d 316, 323 (5th Cir. 2005).

³⁷ *In re DVI Inc. Sec. Litig.*, 249 F.R.D. 196 (E.D. Pa. 2008).

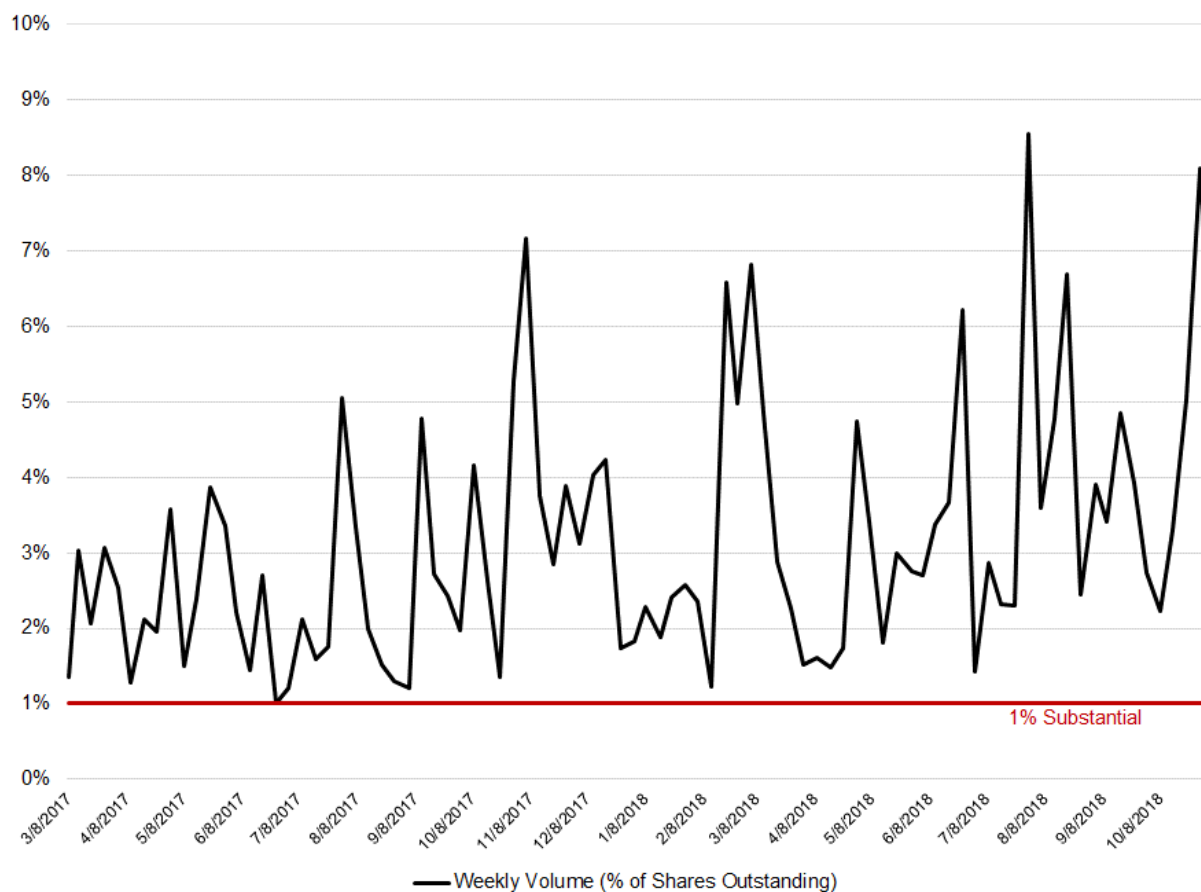
³⁸ *Carpenters Pension Tr. Fund of St. Louis v. Barclays PLC*, 310 F.R.D. 69, 81 n.77 (S.D.N.Y. 2015).

A. Cammer Factors

1) Cammer Factor 1: Average Weekly Trading Volume

33. In *Cammer*, the court observed that an actively traded security is indicative of market efficiency “because it implies significant investor interest in the company,” which, “in turn, implies a likelihood that many investors are executing trades on the basis of newly available or disseminated corporate information.”³⁹ The court identified weekly turnover (average weekly trading volume relative to the shares outstanding) as a relevant indicator of active trading, concluding that “[t]urnover measured by average weekly trading of two percent or more of the outstanding shares would justify a strong presumption that the market for the security is an efficient one; one percent would justify a substantial presumption.”⁴⁰ The following chart shows weekly turnover in AAC stock throughout the Class Period:

Chart 1. AAC Weekly Stock Turnover⁴¹



³⁹ *Cammer*, 711 F. Supp. at 1286.

⁴⁰ *Cammer*, 711 F. Supp. at 1286 (citing Bromberg, Alan R. & Lowenfels, Lewis D., 4 *Securities Fraud and Commodities Fraud*, § 8.6 (Aug. 1988) (“Bromberg”).

⁴¹ Weekly trading volume and total shares outstanding for AAC as reported by Bloomberg and S&P Capital IQ.

34. Weekly turnover (expressed in terms of shares outstanding) averaged 3.1 percent per week (on average, 759,086 shares traded out of 24,195,275 shares outstanding) throughout the Class Period and exceeded the 2 percent threshold for a strong presumption of efficiency in approximately 71.6 percent of weeks of the Class Period. At no point during the Class Period did turnover fall below the 1 percent threshold required for a substantial presumption of efficiency.⁴² This supports an inference of an efficient market for AAC common stock throughout the Class Period.

2) **Cammer Factor 2: Analyst Coverage**

35. Widespread dissemination and discussion of company developments facilitates the incorporation of information into stock prices. *Cammer* stated that a “significant” number of securities analysts following a stock would be indicative of market efficiency, because “[t]he existence of such analysts would imply, for example, [relevant financial reports] were closely reviewed by investment professionals, who would in turn make buy/sell recommendations to client investors.”⁴³

36. Securities analysts from major financial institutions who follow AAC make buy and sell recommendations about AAC to their investors on a regular basis. Bloomberg, L.P. (“Bloomberg”) reports the number of such analyst recommendations, which I have compiled over the Class Period.⁴⁴ Bloomberg compiled buy/sell recommendations on AAC stock for at least 2 analysts in each month of the Class Period.

37. I identified over 50 individual analyst reports discussing AAC during the Class Period, with detailed coverage from analysts at Cantor Fitzgerald, Raymond James, and William Blair & Company.⁴⁵ These reports include detailed analyses of AAC’s business and operations. In addition to supporting analysts’ buy/sell recommendations and price targets for AAC, these reports also reflected analysts’ responses, from both a quantitative and qualitative perspective, to new, value-relevant information.⁴⁶

38. I also identified over 100 reports from financial media, wire services and general media discussing AAC during the Class Period in publications.⁴⁷ These reports included discussion and disclosure of value-relevant information regarding AAC’s strategy, acquisitions, financial disclosures and other events, making such information widely distributed to general audiences. This news media coverage facilitated the flow of information to the market related to AAC, thereby promoting market efficiency.⁴⁸

⁴² *Cammer*, 711 F. Supp. at 1286 (citing Bromberg).

⁴³ *Cammer*, 711 F. Supp. 1264 (D.N.J. 1989), at 1286.

⁴⁴ Total analyst recommendations for AAC as of the last trading day of each quarter as reported in Bloomberg.

⁴⁵ See **Appendix B**. I understand analyst reports were accessed through Thomson Reuters.

⁴⁶ See, e.g., William Blair & Co., “Solid Start to 2017; Full-Year Guidance Maintained,” May 3, 2017; Cantor Fitzgerald, “4Q17 Review; AdCare Closing Soon; Revising 2018 Outlook; Reit. OW, \$14 PT,” February 22, 2018; William Blair & Co., “Mixed Quarter Highlighted by 27% Revenue Growth; Labor Cost Pressure Drives EPS Miss,” August 1, 2018.

⁴⁷ See **Appendix B**. I understand media reports were accessed through Factiva.

⁴⁸ *Cheney v. Cyberguard Corp.* (“Cheney”), 213 F.R.D. 484, 499 (S.D. Fla. 2003).

39. The breadth and depth of analyst and media coverage during the Class Period demonstrates that newly available, value-relevant financial information was actively monitored and scrutinized by a network of investment professionals and media outlets, who quickly digested new information and disseminated their reactions to AAC investors. Such coverage supports the proposition that AAC's shares traded in an efficient market.

3) *Cammer* Factor 3: Existence of Market Makers/Institutional Investors and Arbitrageurs

40. The court in *Cammer* found that “[t]he existence of market makers and arbitrageurs would ensure completion of the market mechanism; these individuals would react swiftly to company news and reported financial results by buying or selling stock and driving it to a changed price level.”⁴⁹

41. The U.S. Securities and Exchange Commission (“SEC”) defines a market maker as “a firm that stands ready to buy and sell a particular stock on a regular and continuous basis at a publicly quoted price.”⁵⁰ Market makers hold shares of securities to fill buy or sell orders on demand, thereby offering investors liquidity. The presence of market makers ensures that buyers and sellers of a stock have a ready counterparty available for the “completion of the market mechanism” as new value-relevant information becomes available.⁵¹

42. At least three financial institutions disclose that they made a market in AAC common stock during the Class Period.⁵² Furthermore, throughout the Class Period, AAC was listed on the NYSE, which allocates a designated market maker (“DMM”) to each listed security.⁵³ According to the NYSE:

The cornerstone of the NYSE market model is the Designated Market Maker (DMM). DMMs have obligations to maintain fair and orderly markets for their assigned securities. They operate both manually and electronically to facilitate price discovery during market opens, closes and during periods of trading imbalances or instability. This high-touch approach is crucial for offering the best prices, dampening volatility, adding liquidity and enhancing value.

DMMs apply their market experience and judgment of dynamic trading conditions, macroeconomic news and industry-specific intelligence, to inform their decisions. A valuable resource for our listed-company community, DMMs offer insights, while making capital commitments, maintaining market integrity, and supporting price discovery.⁵⁴

⁴⁹ *Cammer*, 711 F. Supp. at 1286-87.

⁵⁰ <https://www.sec.gov/fast-answers/answersmktmakerhtm.html> (last visited July 6, 2021).

⁵¹ *Cammer*, 711 F. Supp. at 1286-87; <https://www.sec.gov/fast-answers/answersmktmakerhtm.html> (last visited July 6, 2021).

⁵² See, e.g., Cantor Fitzgerald, “Initiating with an Overweight and \$11 Price Target,” Aug. 09, 2017, p. 41; William Blair & Co., “Solid Start to 2017: Full-Year Guidance Maintained,” May 03, 2017, p. 4; and Raymond James, “DSOs Expected to Improve Following ‘One-Time’ Mishaps,” May 05, 2017, p. 6.

⁵³ NYSE Rule 106.02, <https://nyseguide.srorules.com/listed-company-manual> (last visited July 6, 2021). See also, “The NYSE Market Model,” <https://www.nyse.com/market-model> (last visited June 26, 2021).

⁵⁴ “The NYSE Market Model,” <https://www.nyse.com/market-model> (last visited June 26, 2021).

43. DMMs are subject to various responsibilities and duties which compel them to maintain an orderly market and provide liquidity for covered securities.⁵⁵ DMMs are also subject to financial requirements, which provide assurance of their ability to function on a continuous basis.⁵⁶ In addition, I understand DMMs must meet certain trading obligations that serve to increase liquidity, reduce volatility, improve price discovery, and reduce trading costs for AAC investors.⁵⁷

44. The presence of market makers ensures that buyers and sellers were able to routinely exchange shares at market-clearing prices, which ensures prices are reflective of information known by market participants. Throughout the Class Period, multiple large financial institutions made a market for AAC's common stock.⁵⁸

45. *Cammer* also points to the presence of arbitrageurs, who "react swiftly to company news and reported financial results," as another indication of market efficiency.⁵⁹ Arbitrageurs maintain market efficiency by identifying opportunities to buy/sell securities that are under/over-priced. This ensures prevailing prices reflect available value-relevant information.

46. One way to measure the extent to which a security is owned by the type of well-informed investors that typically act as arbitrageurs is to examine the percentage of shares owned by institutional investors such as mutual funds or money managers. Institutional investors are presumed to be well-informed about the securities they hold and able to interpret and act upon new information.⁶⁰ Such investors have the capital, information, and resources required to take advantage of even relatively small arbitrage opportunities, ensuring that share prices reflect value-relevant information.

47. During the Class Period, institutional investors owned an average of 95.7 percent of AAC's public float.⁶¹ This is broadly consistent with the level of institutional ownership of stocks included in major indices such as the S&P 500.⁶² This suggests that AAC's stock was primarily held by sophisticated, well-informed investors who were in a position to consider and react to new, value-relevant information during the Class Period.⁶³

⁵⁵ See NYSE Rule 104(a), <https://nyseguide.srrules.com/rules> (last visited June 26, 2021),

⁵⁶ See NYSE Rule 103, <https://nyseguide.srrules.com/rules> (last visited June 26, 2021),

⁵⁷ "Designated Market Makers," <https://nyseguide.srrules.com/listed-company-manual> (last visited July 6, 2021).

⁵⁸ The NYSE lists Citadel Securities LLC, GTS Securities LLC, and Virtu Americas LLC as its DMMs. See, "Trading Information," <https://www.nyse.com/markets/nyse/trading-info> (last visited June 26, 2021).

⁵⁹ *Cammer*, 711 F. Supp. at 1286-87.

⁶⁰ Brad M. Barber, et al., "The Fraud-on-the-Market Theory and the Indicators of Common Stocks' Efficiency," *The Journal of Corporation Law*, Winter 1994, p. 292.

⁶¹ S&P CapIQ Data and SEC Filings. I note that S&P CapIQ lists AAC's institutional ownership as over 100% of public float for certain quarters during the Class Period. I understand from Bloomberg that this is due to timing discrepancies in SEC Form 13F filings (from which this data is gathered), institutional lending of shares, and other technical issues. Despite these discrepancies, this data is properly read as a directional indication that the significant portion of AAC shares are owned by institutional investors.

⁶² See, e.g., Charles McGrath, "80% of equity market cap held by institutions," *Pensions & Investments*, Apr. 25, 2017.

⁶³ Based on data retrieved from S&P Capital IQ, I identified over 150 institutional investors required to file SEC Form 13F throughout the Class Period.

48. The level of institutional ownership of AAC stock, coupled with the participation of multiple market makers and the fact that AAC traded on the NYSE, indicates that AAC traded in an efficient market.

4) **Cammer Factor 4: Eligibility to File an S-3 Registration Statement**

49. The SEC allows “more seasoned” companies to file a Form S-3 to register securities.⁶⁴ The court in *Cammer* found “the existence of Form S-3 status is an important factor weighing in favor of a finding that a market is efficient” as “it is the largest and most well-known companies which register equity securities on Form S-3.”⁶⁵

50. The Form S-3 provides for an expedited registration of public securities by a company that already has registered a class of securities under the Securities Act and which has been in compliance with the reporting requirements under the Securities Act without defaulting on debts during the previous year.⁶⁶ A company is eligible to register an equity offering with an expedited Form S-3 when its common equity held by non-affiliates (its “public float”) is at worth least \$75 million.⁶⁷ According to *Cammer*, “[t]he ‘public float’ aspect of the Form S-3 requirements ensures that enough investors have in fact read the previously filed [prospectus]. . . . It is this aspect of the Form S-3 requirements that calls into play the efficient market hypothesis.”⁶⁸

51. Due to the timing of its IPO in October 2014, I understand that AAC had already been subject to the Securities Exchange Act reporting requirements for at least twelve calendar months by the beginning of the Class Period, as is required for companies to be eligible to file a Form S-3.⁶⁹ In addition, AAC actually did file a Form S-3 during the Class Period.⁷⁰ At two times during the Class Period, however, AAC’s public float fell below \$75 million:

⁶⁴ *Cammer*, 711 F. Supp. at 1284.

⁶⁵ “As stated by the SEC: . . . Proposed Form S-3 recognizes the applicability of the efficient market theory to the registration statement framework with respect to those registrants which usually provide high quality corporate reports, including Exchange Act reports, and whose corporate information is broadly disseminated, because such companies are widely followed by professional analysts and investors in the market place. . . . Because of the foregoing observations made by the SEC, the existence of Form S-3 status is an important factor weighing in favor of a finding that a market is efficient.” *Cammer*, 711 F. Supp. at 1284-85. See also, *Krogman*, 202 F.R.D. at 476 (finding that the SEC permits the filing of a Form S-3 “only on the premise that the stock is already traded on an open and efficient market, such that further disclosure is unnecessary”).

⁶⁶ Form S-3 Registration Statement Under the Securities Act of 1933, pp. 2-3, <https://www.sec.gov/files/forms-3.pdf> (last visited July 6, 2021).

⁶⁷ Alternatively, companies that do not have a public float of at least \$75 million can file an S-3 if they meet all other S-3 requirements, are not a shell company, have their stock listed and registered on a national securities exchange, and limit their offerings to no more than 1/3 of the market value of stock held by non-affiliates. See Form S-3 Registration Statement Under the Securities Act of 1933, pp. 3, 5 <https://www.sec.gov/files/forms-3.pdf> (last visited July 6, 2021).

⁶⁸ *Cammer*, 711 F. Supp. at 1285 and n. 33.

⁶⁹ Form S-3 Registration Statement Under the Securities Act of 1933, pp. 2-3, <https://www.sec.gov/files/forms-3.pdf> (last visited July 6, 2021).

⁷⁰ AAC Form S-3 filed June 8, 2018. The registration statement was declared effective on June 22, 2018 and permitted AAC to issue up to an aggregate of \$150 million in securities, consisting of common stock, preferred stock, warrants and units (AAC Holdings Form 10-Q for the period ended June 30, 2018 at p.17).

- a. Between May 18, 2017 to August 2, 2017, AAC's public float fell below \$75 million on 32 trading days, with a low of \$67.8 million (based on its closing price).⁷¹ On August 4, 2017, however, AAC filed an amendment to its previously filed Form S-3 (dated November 12, 2015), which deregistered shares that had remained unsold.⁷² This filing suggests that AAC had some capacity to issue additional shares during this time (based on its previously filed registration). In addition, AAC certified in its August 4, 2017 filing that it had reasonable grounds to believe that it met all of the requirements for filing on Form S-3 on that date.⁷³
- b. On each of the five days between October 30, 2018 and November 5, 2018, AAC's public float was below \$75 million, with a low of \$64.8 million (based on its closing price).⁷⁴

52. Together, AAC's public float closed above \$75 million on 91.2 percent of trading days in the Class Period. I understand that AAC was the subject of a subpoena from the SEC in March 2018, which may have affected the company's ability to complete an expedited registration of its securities; however, I understand Plaintiff alleges that Defendants concealed this subpoena from the market until November 6, 2018.⁷⁵ I have seen no other evidence that AAC was not in compliance with its disclosure obligations other than what has been alleged in this case.

53. From an economic perspective, the \$75 million threshold is not a bright line below which one would expect market efficiency to be limited. Furthermore, AAC did, in fact, file an S-3 after its public float had fallen below this threshold in 2017. On balance, this factor supports an inference of market efficiency.

5) *Cammer* Factor 5: Empirical Evidence of Cause-and-Effect Relationship Between Events and Stock Price Movements

54. The fifth *Cammer* factor relates to a cause-and-effect relationship between the release of unexpected company news and stock price movements. As the court explained:

[I]t would be helpful to a plaintiff seeking to allege an efficient market to allege empirical facts showing a cause and effect relationship between unexpected corporate events or financial releases and an immediate response in the stock price. This, after all, is the essence of an efficient market and the foundation for the fraud on the market theory.⁷⁶

⁷¹ Data retrieved from Bloomberg.

⁷² AAC Holdings Inc. Post-Effective Amendment No.1 to Form S-3 Registration dated August 4, 2017. The registered, unsold securities related to the potential conversion of convertible notes which were refinanced effective June 30, 2017 (AAC Holdings Inc. Post-Effective Amendment No.1 to Form S-3 Registration dated August 4, 2017).

⁷³ AAC Holdings Inc. Post-Effective Amendment No.1 to Form S-3 Registration dated August 4, 2017.

⁷⁴ Data retrieved from Bloomberg.

⁷⁵ Amended Complaint, ¶ 58

⁷⁶ *Cammer*, 711 F. Supp. at 1287.

55. The fifth *Cammer* factor implies that on days when new information that is relevant to the value of a company whose stock trades in an efficient market becomes available, price movements (both positive and negative) tend to be larger than price movements on days without such information.⁷⁷ Since information has the potential to change expectations about a company and, therefore, the value of its shares, on average one would expect days on which new information was released to be associated with a relatively higher frequency of significant abnormal returns in an efficient market in which shares react to new information.

a) Release Days

56. In order to analyze the fifth *Cammer* factor with regard to AAC, I identify a subset of days on which AAC released value-relevant information through press releases ("Release Days"). The Release Days are therefore days on which one would expect value-relevant information to have become available to the market. I compare the frequency of statistically significant abnormal returns on Release Days (the treatment group) to that of other days in the Class Period (the control group) to test whether Release Days tended to be accompanied by significant changes in AAC's share price.

57. For the purpose of this analysis, I consider Release Days to be days on which AAC issued quarterly/annual financial results or issued revised guidance, which is a set of days that one would expect, *ex ante*, to be value-relevant.⁷⁸ Academic articles and treatises explain theoretically and demonstrate empirically that information disclosed in conjunction with earnings announcements can cause investors to significantly reevaluate the worth of a particular security.⁷⁹

58. I have identified seven Release Days during the Class Period associated with an earnings release or guidance revision issued by AAC through a press release. Details of the Release Days I select are set forth in **Exhibit 1**.

⁷⁷ An abnormal price movement on all days when information is released is not necessary for a finding of market efficiency because information included in certain releases may have been small (relative to the size of the firm) or expected by market participants.

⁷⁸ Limiting my Release Days to earnings releases and revisions does not mean that there are no other days within the Class Period on which new, value-relevant information was released. By its nature, the selection of a limited number of Release Days when news was released, if anything, biases my results toward a finding of no cause-and-effect relationship (as my Release Days exclude additional days on which value-relevant information may have become available, thereby decreasing the likelihood of observing a difference in the frequency of statistically significant abnormal returns across Release days and others). By only considering earnings releases, therefore, I ensure that the manner in which I identified Release Days is consistent with the principles of economic hypothesis testing and was performed using a replicable process.

⁷⁹ See, e.g., William H. Beaver, "The Information Content of Annual Earnings Announcements," *Journal of Accounting Research* 6, 1968, pp. 67-92; William H. Beaver, *Financial Reporting: An Accounting Revolution* (3rd ed. 1998), p. 38 ("No other figure in the financial statements receives more attention by the investment community than earnings per share. The relationship between accounting earnings and security prices is probably the single most important relationship in security analysis, and its prominence is reflected in the attention given to price-earnings ratios."); Robert G. May, "The Influence of Quarterly Earnings Announcements on Investor Decisions as Reflected in Common Stock Price Changes," *Journal of Accounting Research* 9, 1971, pp. 119-163; Joseph Aharony and Itzhak Swary, "Quarterly Dividend and Earnings Announcements and Stockholders' Returns: An Empirical Analysis," *The Journal of Finance* 35(1), 1980, pp. 1-12.

b) Event Study

59. In order to examine the extent to which AAC's share price responded to information disclosed on Release Days, I apply a widely accepted technique known as an event study.⁸⁰ Event studies examine share price returns corresponding to a particular *event window*, during which the event in question occurred. An event study may be used to isolate the impact of an announcement corresponding to a particular event from other factors that would have affected the share price at that time, such as macroeconomic news affecting broad market indices.

60. A widely used application of the event study is known as the market model.⁸¹ The market model is based on regression analysis, which provides a statistical framework for examining the nature and form of the relationship between two or more variables. In this case, a market model may be used to explain or predict changes in the dependent variable, in this case AAC's share price returns, as a function of changes in the values of the independent variables, such as returns to the overall U.S. stock market and a comparable index.

61. The market model works by predicting what the share price return would have been based on movements in market indices on a particular day.⁸² By subtracting predicted returns from the actual returns, we can estimate the change in the company's share price that is not explained by wider market phenomena, which is known as the *abnormal return*. Thus, the abnormal return is the difference between the return predicted by the market model and the actual return associated with the event at issue. In cases where the abnormal return is statistically significant, it may be reasonable to conclude that it was caused by the event in question, provided the news became available to the market at the time of (or just prior to) the abnormal movement.⁸³

62. The market model can control for broad market movements as well as industry-specific information that is not specific to the company. In addition, market models may also include indicator variables to control for other events, such as earnings announcements, that one would expect to affect share price returns on days outside the event window.

⁸⁰ John Campbell, et al., *The Econometrics of Financial Markets* (1997), Chapter 4. See also, *Halliburton II*, 573 U.S. at 280-81.

⁸¹ John Campbell, et al., *The Econometrics of Financial Markets* (1997), Chapters 4-6. See also, A. Craig MacKinlay, "Event Studies in Economics and Finance," *Journal of Economic Literature*, Vol. 35, No. 1, Mar. 1997.

⁸² Share price returns are computed as the percentage movements in the security price. For the purposes of estimating the market model, share price returns are typically expressed as logarithmic returns, or log returns. Specifically, a log return is the natural logarithm of the ratio of two daily closing security prices: $\ln(P_t/P_{t-1})$, where 'ln' is the natural logarithm, ' P_t ' refers to the security price on day t and ' P_{t-1} ' refers to the security price one trading day prior to day t .

⁸³ Statistical significance represents the likelihood that a result or observed relationship between two variables is unlikely under a specific hypothesis. Hypothesis testing is traditionally employed to determine if a result is statistically significant or not. This provides a "p-value" representing the probability of observing data as extreme as that which was measured if the null hypothesis is indeed true. A statistically significant result at the one percent significance level is one in which there is a less than one percent probability of observing this data if the null hypothesis were true. Such p-values are also often described in terms of confidence levels by subtracting the p-value from 100 percent. See, for instance, Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach* (6th ed. 2016), p. 119.

63. I apply a market model to estimate AAC abnormal returns for the Class Period using the following independent variables:⁸⁴

- a. An independent variable representing the daily log return of the Russell Microcap Total Return Index (the “Market Index”), calculated as the natural logarithm of the ratio of its consecutive daily closing prices, or $\ln(P(MRKT)_t/P(MRKT)_{t-1})$.⁸⁵
- b. An independent variable representing the daily log return of the Dow Jones U.S. Select Health Care Providers Total Return Index (the “Industry Index”), calculated as the natural logarithm of the ratio of its consecutive daily closing prices, or $\ln(P(IND)_t/P(IND)_{t-1})$.⁸⁶
- c. Indicator, or dummy, variables that have a value of one on Release Days and zero on all other days.

64. I use the market model to predict AAC’s expected share price return on each day of the Class Period using a set number of prior days’ returns, or *estimation window*.

65. For each of the Release Days, I predict each trading day’s return using a rolling estimation window based on the preceding twelve months (252 trading days) of daily returns.⁸⁷ I then compare the frequency of statistically significant abnormal returns on the Release Days to abnormal returns on all other trading days during the Class Period.

c) Analysis of Abnormal Returns

66. The market model ensures that the abnormal return on any Release Day is indicative of a stock’s reaction to new information, after controlling for returns that may be predicted from broader market movements. When statistically significant abnormal returns systematically follow the release of new information, one can infer that the value-relevant information is causing returns.⁸⁸

67. When an event related to firm value (such as an information release) takes place on a specific day and the return following that event is significantly different from the prediction, it can be inferred that the stock price responded to the event or release of information on that day. If a day’s return following such an event is statistically significant (as typically measured at the 5 percent level), then this implies that there

⁸⁴ As set forth in my reliance materials, the results of my analysis are not sensitive to the selection of a particular index. Applying alternative market and industry indices yields similar results.

⁸⁵ Russell Microcap Total Return Index, <https://research.ftserussell.com/Analytics/FactSheets/temp/893007ef-09ec-47ea-ae7e-a00568d505b2.pdf> (last visited July 6, 2021).

⁸⁶ Dow Jones U.S. Select Health Care Providers Total Return Index, <https://www.spglobal.com/spdji/en/indices/equity/dow-jones-us-select-health-care-providers-index/#overview> (last visited July 6, 2021).

⁸⁷ As set forth in my reliance materials, the results of my analysis are not sensitive to the length of the estimation window.

⁸⁸ The absence of a statistically significant abnormal return does not necessarily imply that a company’s stock did not react to a particular set of information since, for instance, significant positive and negative news released at the same time can have offsetting effects, resulting in an abnormal return that is not statistically significant. Accordingly, although a statistically significant share price reaction to news is indicative of market efficiency, a finding of non-significance does not necessarily indicate that the market for a stock is inefficient, because a non-significant reaction may be expected depending on the circumstances.

is less than a 5 percent chance one would observe such an abnormal return under the null hypothesis that the market model fully explains AAC's returns.⁸⁹

68. I evaluate evidence of a cause-and-effect relationship between the release of value-relevant information and stock price movements by testing a hypothesis that the frequency of statistically significant abnormal returns differs between Release Days and other trading days. If AAC trades in an efficient market, I expect a higher frequency of statistically significant abnormal returns on days in which news is released to the market relative to other trading days. I do not expect statistically significant returns to occur on all Release Days, since not all information released to the market is necessarily material or differs from expectations (e.g., market prices may already reflect the information if the event it was previously expected).

69. The set of Release Days that I identify in the Class Period provide sufficient statistical power from which to draw reliable inferences as to the responsiveness of AAC stock to new, value-relevant information.

- a. I find a significantly higher frequency of statistically significant abnormal returns on Release Days compared to other days, with 5 of the 7 Release Days (71.4 percent) exhibiting abnormal returns that are significant at the 5 percent level.
- b. In contrast, for the remaining 414 days in this period, only 27 days (6.5 percent) have abnormal returns that are significant at the 5 percent level.

70. My results are consistent with the hypothesis that there is a cause-and-effect relationship between information revealed on Release Days and AAC's stock price movements.⁹⁰ The results indicate that large abnormal returns are much more common on Release Days (when financial results were announced) than on non-Release Days, as would be expected in an efficient market. Chi-squared and Fisher's exact tests confirm the statistical significance of the difference in the frequency of significant abnormal returns on Release Days as compared to non-Release Days.⁹¹

d) Conclusion

71. My analysis of AAC's abnormal returns during the Class Period demonstrates that AAC's shares responded systematically to new information about the company, which directly supports a

⁸⁹ Although p-values of 0.05 are often applied as a threshold for statistical significance, the American Statistical Association ("ASA") has cautioned against relying on bright-line thresholds without considering the broader context of the analysis, explaining that "[p]ractices that reduce data analysis or scientific inference to mechanical 'bright-line' rules (such as 'p < 0.05') for justifying scientific claims or conclusions can lead to erroneous beliefs and poor decision making. A conclusion does not immediately become 'true' on one side of the divide and 'false' on the other." See, Ronald L. Wasserstein and Nicole A. Lazar, "The ASA Statement on p-Values: Context, Process, and Purpose," *The American Statistician*, 2016, 70:2, 129-133.

⁹⁰ In addition, as set forth in Exhibit 1, the direction of share price reactions on Release Days are consistent with AAC's results relative to expectations. In particular, significant positive/negative abnormal returns corresponded with positive/negative results.

⁹¹ Under both tests, the null hypothesis is that Release Days are *not* more likely than non-Release Days to have abnormally large price returns.

conclusion that AAC's common stock traded in an efficient market during the Class Period in a manner that can be considered as having arisen from a cause and effect relationship.

B. Additional Indicators of Market Efficiency

72. In addition to those factors identified in *Cammer*, I understand courts have considered other factors when assessing market efficiency.

1) Market Capitalization and Public Float

73. The size of a stock's market capitalization and public float have been found to be indicators of market efficiency, as larger companies are more likely to be traded and a larger public float may represent greater trading opportunities for sophisticated investors.⁹²

74. As of market close on every day throughout the Class Period, AAC's market capitalization ranged from \$131 million to \$308 million.⁹³ Over the same period, AAC's public float as a percent of total shares outstanding fluctuated from as low as 45.7% to as high as 51.1%.⁹⁴

75. In terms of market capitalization, AAC ranked in the bottom decile of U.S. equities included in the Russell 3000 during the Class Period.⁹⁵ However, its inclusion in the Russell 3000 throughout the Class Period suggests that AAC was among the 3,000 largest publicly traded U.S. companies.⁹⁶ While AAC was among the smaller companies in the Russell 3000, its inclusion in this index, coupled with the significant portion of shares outstanding available to trade, generally support an inference of market efficiency during the Class Period.

2) Bid-Ask Spread

76. The bid-ask spread for a security is the difference between the price that a buyer is willing to pay and the price that a seller is willing to accept.⁹⁷ Stocks trading at high volumes with multiple market makers tend to have many ready buyers and sellers, such that bid-ask spreads are smaller than those of more thinly traded stocks, which tend to have fewer market participants and larger bid-ask spreads.

⁹² *Krogman*, 202 F.R.D. at 477-78; *Unger v. Amedisys Inc.*, 401 F.3d at 323; *Cheney*, 213 F.R.D. 484, 502 (S.D. Fla. 2003).

⁹³ AAC historical market capitalization and shares outstanding as reported by Bloomberg and S&P Capital IQ. Market capitalization represents the market value of a company's issued and outstanding stock. "CFA Program Curriculum Level I Volume 5: Equity and Fixed Income, *CFA Institute*, 2019, p. 44.

⁹⁴ S&P Capital IQ.

⁹⁵ Data retrieved from Bloomberg.

⁹⁶ Russell 3000 Index, <https://research.ftserussell.com/Analytics/FactSheets/temp/4a0c7788-28cb-4d42-8f92-92d816f5e634.pdf> (last visited July 6, 2021).

⁹⁷ "CFA Program Curriculum Level I Volume 5: Equity and Fixed Income, *CFA Institute* (2019), p. 44.

77. Certain courts have established threshold values for bid-ask spreads that are deemed to weigh in favor of market efficiency. For instance, the court in *Cheney* found that a bid-ask spread of 2.44 percent weighed in favor of market efficiency.⁹⁸

78. Bloomberg reports that the average bid-ask spread for AAC stock for each trading day during the Class Period averaged 0.14 percent.⁹⁹

79. AAC's narrow bid-ask spread is consistent with evidence that its shares traded in an efficient market during the Class Period.

3) Statistical Properties of Stock Returns (Autocorrelation)

80. Econometric techniques can be used to evaluate market efficiency by assessing whether lagged price returns are predictors of future price returns (*i.e.*, whether price returns are autocorrelated). If share price returns systematically predict returns on the next day, then investors could, in theory, profitably trade on past market data, implying that the market for that stock is not efficient.¹⁰⁰

81. I test for autocorrelation in AAC returns by examining the relationship between each day's share price return and the return on the previous day using regression analysis. I find no statistically significant relationship, indicating that price returns cannot be predicted from previous days' returns. This is consistent with a stock that traded in an efficient market.¹⁰¹

82. When news released into the market affects the stock price unpredictably over time and in a non-systematic manner—that is, when returns respond to new information—the price series is said to have what is known as a “unit root.”¹⁰² The presence of a unit root suggests that historical information does not have a persistent effect on returns.¹⁰³ The Augmented Dickey-Fuller test evaluates the presence of a “unit root” in a time-series.¹⁰⁴ Performing the Augmented Dickey-Fuller on AAC's stock price during the Class Period indicates that AAC's price series has a unit root, which is consistent with the conclusion that AAC's stock traded in an efficient market.¹⁰⁵

⁹⁸ *Cheney*, 213 F.R.D. at 501.

⁹⁹ AAC bid-ask spread percent as reported by Bloomberg.

¹⁰⁰ See, e.g., John Campbell, et al., *The Econometrics of Financial Markets*, 1997, p. 22.

¹⁰¹ In regression analysis, the null hypothesis being tested is that the coefficient on the independent variables is zero. In this case, the coefficient on the independent variable is insignificant, indicating the data are consistent with the null hypothesis (that the coefficient is zero and that the prior day's return has no impact on the current day's return). Robert S. Pindyck and Daniel L. Rubinfeld, *Econometric Models and Economic Forecasts* (4th ed. 1998), p. 43.

¹⁰² “Augmented Dickey-Fuller unit root test,” *Stata Time Series Reference Manual* (Release 15, 2017), p. 157.

¹⁰³ See, e.g., John Campbell, et al., *The Econometrics of Financial Markets*, 1997, p. 30.

¹⁰⁴ David Dickey and Wayne Fuller, “Distribution of the Estimators for Autoregressive Time Series with a Unit Root,” *Journal of the American Statistical Association*, Vol. 74, Issue 366, Jun. 1979, pp. 427-431.

¹⁰⁵ The Augmented Dickey Fuller test evaluates the presence of a unit root in a time-series. The null hypothesis being tested is that a unit root exists. In this case, the test suggests the presence of a unit root in AAC's stock price *series* and rejects the premise a unit root exists in AAC's stock price *returns*.

4) Lack of Constraints on Short Selling

83. I understand that the presence of short sellers is another factor that courts have considered as evidence of market efficiency.¹⁰⁶ Short sellers increase trading volumes and enhance the ability of a market to adjust for new information (e.g., as a check on share prices).

84. Constraints on short sellers, all else equal, would reduce market participation and potentially affect market efficiency. To assess whether short-selling constraints exist, regulatory agencies rely on certain factors, including “fails-to-deliver” in a short transaction. The SEC requires self-regulating organizations (like the NYSE) to maintain lists of “threshold securities” that may have heightened risk of short sale constraints.¹⁰⁷ A threshold security is one that meets the following criteria:

- a. there is an aggregate fail to deliver position at a registered clearing agency for five consecutive settlement days;¹⁰⁸
- b. there are aggregate fails to deliver at a registered clearing agency of 10,000 shares or more per security;¹⁰⁹ and
- c. the level of fails is equal to at least one-half of one percent of the issuer’s total shares outstanding.¹¹⁰

85. The SEC tracks the total fails-to-deliver shares for each security. While some level of delivery failures is common, the SEC tracks securities with delivery failures exceeding one-half of one percent for more than five consecutive settlement dates.¹¹¹ The SEC also notes that securities designated as “threshold securities” tend to have higher fees.¹¹² High fees can also limit short selling by consuming profits and deterring investors who might otherwise engage in short transactions.

86. As shown in the chart below, AAC was below the threshold established by the SEC on all trading days during the Class Period. This supports the inference that AAC stock traded in an efficient market throughout Class Period.

¹⁰⁶ See, e.g., *Schleicher v. Wendt*, 618 F.3d 679, 685 (7th Cir. 2010); *Barclays*, 310 F.R.D. at 81 n.77.

¹⁰⁷ See, e.g., NYSE Threshold Securities at <https://www.nyse.com/regulation/threshold-securities> (last visited July 6, 2021); Nasdaq Threshold List at <https://www.nasdaqtrader.com/trader.aspx?id=RegSHOThreshold> (last visited July 6, 2021).

¹⁰⁸ In the context of short selling, fails-to-deliver shares “represent the aggregate net balance of shares that failed to be delivered as of a particular settlement date.” Fails-to-Deliver Data, SEC, <https://www.sec.gov/data/foiadocsfailsdatahtm> (last visited July 6, 2021); see also, <https://www.investor.gov/introduction-investing/investing-basics/glossary/threshold-securities> (last visited July 6, 2021).

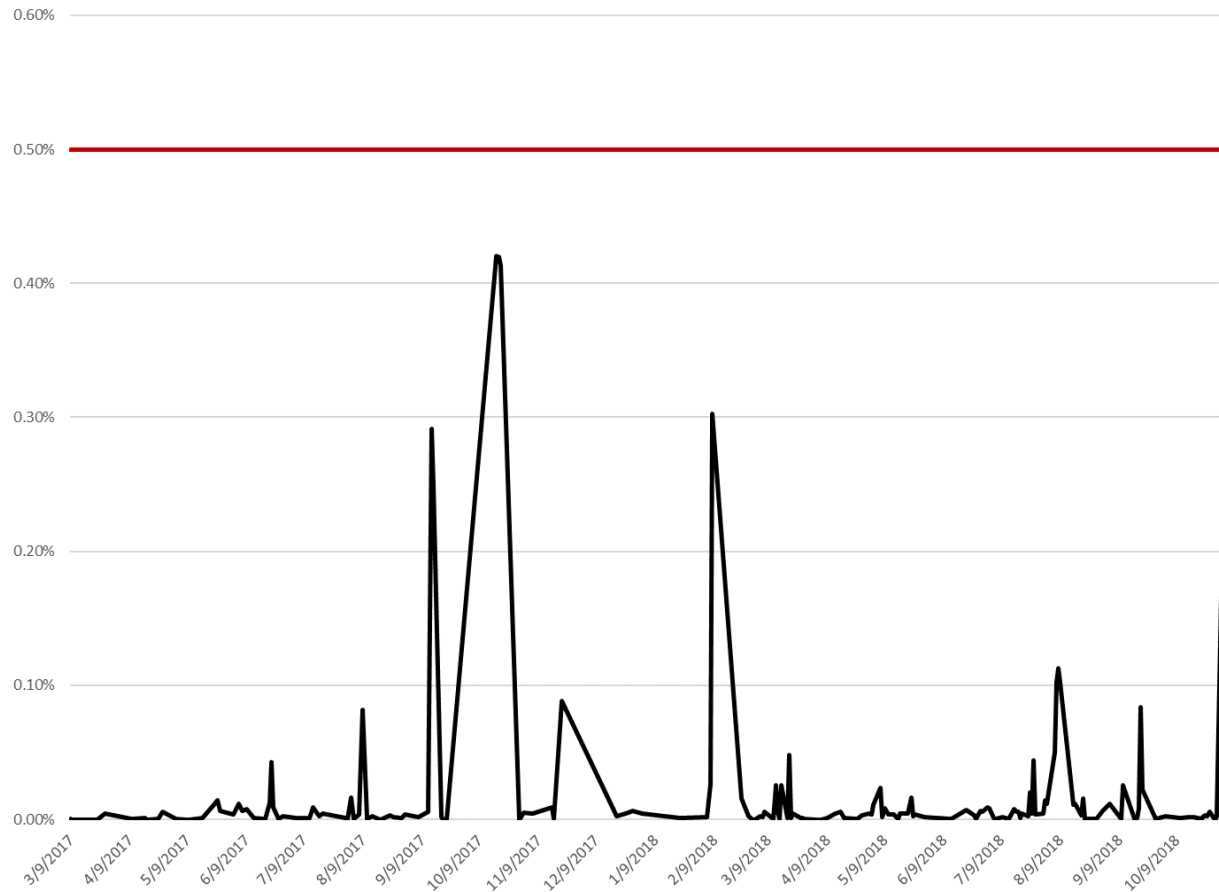
¹⁰⁹ <https://www.investor.gov/introduction-investing/investing-basics/glossary/threshold-securities> (last visited July 6, 2021).

¹¹⁰ SEC Rule 203(c)(6).

¹¹¹ SEC Rule 203(c)(6).

¹¹² *In the Matter of Gary S. Bell*, SEC Release No. 65941, Dec. 13, 2011 (noting that “threshold securities are hard-to-borrow and therefore command large fees in the stock loan market”).

Chart 2. AAC Failed-to-Deliver Shares¹¹³



C. Conclusion

87. I understand courts have not established a single test to determine whether a security trades in an efficient market; rather, a finding of market efficiency is based on multiple factors.¹¹⁴ The following table summarizes my findings for each of the factors I examined.

¹¹³ Fails-to-Deliver Data, SEC, <https://www.sec.gov/data/foiadocsfailsdatahtm> (last visited July 6, 2021); shares outstanding as reported by Bloomberg.

¹¹⁴ *Cammer*, 711 F. Supp. at 1287.

Table 1. Summary of Market Efficiency Findings

Factor	Results	Supports EMH
<i>Cammer Factors</i>		
Stock trading volume	3.1 percent average weekly turnover during Class Period	Yes
Number of analysts and news outlets following and reporting on stock	Three analysts with detailed coverage of AAC; over 50 analysts reports and over 100 general and business media reports	Yes
Market makers and institutional investors	At least four market makers, including the NYSE DMM; significant institutional ownership	Yes
Eligibility to file an S-3 registration statement	Filed S-3 during the Class Period and float over \$75 million on 91.2% of days	Yes
Cause-and-effect relationship between events and stock price movements	Statistically significant differences between Release Days and non-Release Days	Yes
<i>Other Factors</i>		
Market capitalization and float	\$131 million - \$308 million; between 45.7% to 51.1% of shares publicly floated.	Yes
Bid-ask spread	Average spread of 0.14 percent	Yes
Statistical properties	No indication of autocorrelation in returns; no persistence of historical information in returns	Yes
Constraints on short selling	No persistent constraints	Yes

88. Shares that trade in an efficient market do not necessarily have to meet each of the above criteria. Shares of AAC common stock, however, met each of these criteria during the Class Period. In my opinion, the evidence indicates that AAC shares traded in a market of the semi-strong efficient form during the Class Period.

VII. Measuring Damages to Shareholders on a Class-wide Basis

89. Under plaintiff's liability theory, Defendants' scheme and misrepresentations and omissions of material facts caused AAC common stock to trade at artificially inflated prices between at least March 8, 2017 and November 5, 2018 by inducing artificial inflation in the price of AAC common stock and maintaining existing artificial inflation. According to Plaintiff, individual shareholders were harmed to the extent they experienced losses arising from such artificial inflation.

90. The inflation in AAC's common stock, if any, can be measured using widely accepted valuation and economic techniques. Estimating share price inflation often begins by analyzing the impact of the curative events. When previously withheld information was disclosed to the market, artificial price inflation is removed from AAC's stock price. Curative events therefore indicate the extent to which the share price had been inflated by alleged material misrepresentations or omissions and, as a result, may be used to estimate share price inflation in semi-strong form efficient markets.

91. Given that AAC's shares traded in a semi-strong form efficient market, the share price reactions to new, value-relevant information appropriately reflected the effects of such events on the share price. Therefore, one can measure the impact of a curative event on AAC's share price using the abnormal returns, if any, following such disclosure using an event study approach. In cases where the abnormal return following a curative event is statistically significant, it may be reasonable to conclude that the return was caused by the event in question provided the news became available to the market at the time of (or just prior to) the abnormal movement. If no other information was released at the same time as the event, then the abnormal return may be used as an estimate of the event's effect on the value of the company's shares.

92. To the extent that there are issues complicating the quantification of artificial inflation at the time of a curative event, standard financial analysis and valuation tools can be applied to measure inflation and damages in accordance with Plaintiff's theory of liability. For instance, practitioners routinely measure the value of expected earnings using income and market approaches, which may be used to quantify the impact of changes in expectations and perceived risk associated with a business or earnings stream.¹¹⁵ These techniques may be used to measure the share price impact of alleged misrepresentations directly or to corroborate the observed share price impact of a curative event, as well as to quantify the impact of any confounding information that may have coincided with a curative event.

93. By measuring the impact of allegedly false information (after removing the effects of any confounding information, if any) on AAC's share price, one can estimate the extent (if any) to which AAC's share price was inflated due to the alleged misrepresentations in this matter. On this basis, share price inflation can be estimated for any day in the Class Period based on the impact that the scheme, misrepresentations, and omissions had on the share price at the time.

94. Once any share price inflation has been estimated for each day of the Class Period, an individual plaintiff's recoverable damages are based on the difference between: (a) share price inflation associated with shares purchased at the time they were purchased; and (b) share price inflation associated with shares sold at the time they were sold after one or more curative events (or zero for shares sold or

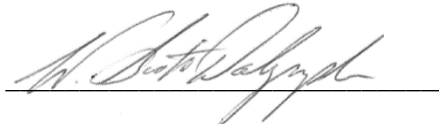
¹¹⁵ See, for instance, Shannon P. Pratt, *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*, (5th ed., 2008), Chapters 3, 9 and 11. Under the income approach, value today equals future cash flows discounted at the opportunity cost of capital, which reflects the risk associated with those cash flows. The market approach generally applies a multiple to a measure of future income, such as earnings.

held after the last curative event once inflation is removed). Under the Private Securities Litigation Reform Act of 1995 (“PSLRA”), a “plaintiff’s damages shall not exceed the difference between the purchase or sale price paid or received, as appropriate, by the plaintiff for the subject security and the mean trading price of that security during the 90-day period beginning on the date on which the information correcting the misstatement or omission that is the basis for the action is disseminated to the market.”¹¹⁶ Additionally, “if the plaintiff sells or repurchases the subject security prior to the expiration of the 90-day period,” then “damages shall not exceed the difference between the purchase or sale price paid or received, as appropriate, by the plaintiff for the security and the mean trading price of the security during the period beginning immediately after dissemination of information correcting the misstatement or omission and ending on the date on which the plaintiff sells or repurchases the security.”¹¹⁷

95. The methods and techniques I describe are widely accepted and may be applied to any and all members of the proposed Class.

VIII. Further Work

96. My analysis is ongoing, and I reserve the right to supplement my opinions as additional information is made available to me.



W. Scott Dalrymple, CFA
BVA Group
Partner

¹¹⁶ 15 U.S.C. § 78u-4 (2011).

¹¹⁷ 15 U.S.C. § 78u-4 (2011).



Appendix A

SCOTT DALRYMPLE, CFA

PARTNER

Direct	+1.214.619.4960
Mobile	+1.214.842.0078
Email	sdalrymple@bvagroup.com

Scott Dalrymple is an economist specializing in quantitative valuation, econometrics, statistics, securities analysis, antitrust, financial markets, and intellectual property.

Mr. Dalrymple has led numerous consulting, commercial litigation, and restructuring engagements on behalf of multinational companies, investors, financial institutions, and government agencies in the U.S., Europe, and Australia. He has testified in federal and state court and has advised clients in areas including:

- Application of economic, statistical, and quantitative methods used in business interruption matters, securities analysis, financial forecasting, valuation, and antitrust analyses;
- Construction of event studies, market efficiency tests, and other financial econometric models to assess share price artificiality associated with alleged misrepresentations and non-disclosures;
- Quantification of multibillion-dollar claims related to the securitization of residential mortgage-backed assets;
- Estimation of price artificiality arising from alleged manipulations in crude oil futures and options markets through monopolization of cash forward contracts;
- Valuation of residual interests in mortgage-backed securitizations based on loan-level econometric models and simulations;
- Analysis of reasonable royalty and lost profits damages arising from patent infringement claims;
- Development of economic and financial forecast models for purposes of capital restructurings, evaluating investment opportunities, and managing working capital; and
- Design of sampling procedures and statistical inferences drawn from samples used in fraud investigations, product evaluations, accounting reviews, and class certification analyses.

Mr. Dalrymple holds a Master of Science in Economics with a concentration in Industrial Organization from the London School of Economics and Political Science and a Bachelor of Business Administration in Finance and Business Honors from the University of Texas at Austin. He has presented to chapters of the American Bar Association, the Licensing Executives Society, and other organizations on topics including patent infringement damages, quantitative analysis, and macroeconomic trends. Mr. Dalrymple also contributed to the AICPA Practice Aid on Intellectual Property Infringement Damages and has been published in Law360. He is a member of the CFA Society of Dallas-Fort Worth.

Prior to joining BVA, Mr. Dalrymple was with AlixPartners and was an economist in the London office of a global economics consulting firm. Mr. Dalrymple began his career at PricewaterhouseCoopers and also worked in corporate finance and transaction advisory roles for a publicly-traded technology company.

PARTNER

TESTIMONY AND PUBLICATIONS

DEPOSITION:

St. Clair County Employees' Retirement System, Individually and on Behalf of All Others Similarly Situated v. Acadia Healthcare Company, Inc. et al.

Civil Action No. 3:18-cv-00988

United States District Court, Middle District of Tennessee, Nashville Division

Highfields Capital I LP, et al. v. SeaWorld Entertainment, Inc., et al.

Civil Action No. 3:18-cv-01276

United States District Court, Southern District of California, San Diego

Farmland Partners Inc., v. Rota Fortunae a/k/a David Quinton Mathews, QKM, L.L.C., et al.

Civil Action No. 1:18-cv-02351

United States District Court, District of Colorado

Nikki Bollinger Grae, individually and on Behalf of All Others Similarly Situated, v. Corrections Corporation of America, et al.

Civil Action No. 3:16-cv-02267

United States District Court, Middle District of Tennessee

Leaf Trading Cards, LLC v. The Upper Deck Company

Civil Action No. 3:17-CV-03200-N

United States District Court, Northern District of Texas, Dallas Division

Samsung Electronics America, Inc., v. All Pro Distributing, Inc., et al.

Civil Action No. 3:15-CV-04108-D

United States District Court, Northern District of Texas, Dallas Division

Royal Park Investments SA/NV, Individually and on Behalf of All Others Similarly Situated v. The Bank of New York Mellon, as Trustee

Cause No. 14-CV-6502

United States District Court, Southern District of New York

Royal Park Investments SA/NV, Individually and on Behalf of All Others Similarly Situated v. HSBC Bank USA, National Association, as Trustee

Cause No. 14-CV-08175

United States District Court, Southern District of New York

Avaya Inc., v. Interactive Intelligence, Inc.

Cause No. 01-16-0004-7193

AAA Commercial Arbitration

Royal Park Investments SA/NV, Individually and on Behalf of All Others Similarly Situated v. Wells Fargo Bank, N.A., as Trustee

Cause No. 14-CV-9764

United States District Court, Southern District of New York

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Royal Park Investments SA/NV, Individually and on Behalf of All Others Similarly Situated v. U.S. Bank National Association, as Trustee

Cause No. 14-CV-2590

United States District Court, Southern District of New York

Galt Strategies, LLC v. Critter Control, Inc., Kevin Clark, ABCN Services Corp., et al.

Cause No. DC-15-05281

162nd Judicial District Court, Dallas County, Texas

Royal Park Investments SA/NV, Individually and on Behalf of All Others Similarly Situated v. Deutsche Bank National Trust Company, as Trustee

Cause No. 14-CV-4394

United States District Court, Southern District of New York

Maxus Healthcare Partners, LLC ("Maxus"), v. Texas RHH, LLC d/b/a Renew Home Health, et al.

Cause No. 017-275219-14

17th Judicial District Court, Tarrant County, Texas

GTG Holdings, Inc. v. Amvensys Capital Group, LLC, ACG Telecom, LLC, and Z. Edward Lateef

Case No. 3:13-cv-03107-M

United States District Court, Northern District of Texas, Dallas Division

In The Matter of the Marriage of Jessica L. Jones and David E. Jones and in the Interest of David E. Jones, Jr., Jackson H. Jones and William A. Jones, Children

Case No. D-1-FM-13-001139

250th Judicial District Court, Travis County, Texas

TRIAL AND HEARING:

Shirley Jones, Individually and on Behalf of Her IRAs, et al., v. WFG Investments, Inc., WFG Advisors, LP, Wilson H. Williams, and David W. Williams

Case No. 16-03743

Financial Industry Regulatory Authority

*Smith Walker v. E*Trade Securities LLC and E*Trade Clearing LLC*

Case No. 16-03022

Financial Industry Regulatory Authority

Avaya Inc., v. Interactive Intelligence, Inc.

Cause No. 01-16-0004-7193

AAA Commercial Arbitration

Maxus Healthcare Partners, LLC ("Maxus"), v. Texas RHH, LLC d/b/a Renew Home Health, et al.

Cause No. 017-275219-14

17th Judicial District Court, Tarrant County, Texas

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Galt Strategies, LLC v. Critter Control, Inc., Kevin Clark, ABCN Services Corp., et al.

Cause No. DC-15-05281

162nd Judicial District Court, Dallas County, Texas

Edward Kennard Andrew and Mark L. Hepworth v. Southwest Securities, Inc.

Case No. 14-02566

Financial Industry Regulatory Authority

In the Matter of the Marriage of Jessica L. Jones and David E. Jones and in the Interest of David E. Jones, Jr., Jackson H. Jones and William A. Jones, Children

Case No. D-1-FM-13-001139

250th Judicial District Court, Travis County, Texas

PRESENTATIONS AND PUBLICATIONS:

Co-Author (with Jody Bland and Todd Goldwasser), "The SEC's Modernized Marketing Rule and Performance Measurement Issues for Investment Advisers," *BVA Group*, April 21, 2021.

Co-Author (with Joseph R. Mason and Jody Bland), "Collateralized Loan Obligations: Overview and Challenges," *BVA Group*, May 14, 2020.

Co-Author (with Robert Manz and Emily Chiu), "COVID-19 Business Interruption Claims: Causation May be Key," *BVA Group*, April 24, 2020.

Co-Author (with Joseph R. Mason and Jeffrey D. Balcombe), "Financial Supervision and Regulation in the US: Dodd-Frank Reform," *European Parliament*, December 2018.

Contributing Author, Hitchner, James R., *Financial Valuation: Applications and Models*, Fourth Edition, April 2017.

Series N and Super Priority Preferred: The Unintended Consequences of Increasing Complexity in Today's Capital Markets, Houston Bar Association Securities Litigation and Arbitration Section, April 11, 2017.

Co-Author, "Don't Shoot the Methodology: Use and (Mostly) Misuse of the Nash Bargaining Solution," *Law360*, March 2014.

Economic Factors That Influence Royalties: Application of Game Theory, LES Seattle Chapter Presentation, November 14, 2013.

Bargaining Power in Licensing Negotiations, LES San Diego Chapter Presentation, March 12, 2013.

Bargaining Theory in Reasonable Royalty Calculations, ABA Webinar, December 14, 2012.

Contributing Author, "Calculating Intellectual Property Infringement Damages," AICPA Practice Aid 06-1, 2012.

AFFILIATIONS:

The Economic Club of Washington D.C., panelist judge for the Philip M. Dearborn and Vernon E. Jordan fellowships for graduate students pursuing doctoral degrees in the fields of economics, finance, and business, 2014 to 2020.

CFA Institute and CFA Society of Dallas–Fort Worth.

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PARTNER

PARTIAL LIST OF CASES

Mr. Dalrymple has been involved with the following types of cases in a consulting and/or testifying capacity:

VALUATION AND SECURITIES ANALYSIS

- Provided expert and rebuttal opinions on share price inflation and aggregate damages on behalf of a former Australian electronics retail chain.
- Provided expert testimony on damages and losses on behalf of a broker/dealer arising from a series of private placement investments and offerings.
- Quantified the impact of trustees' alleged failures to repurchase loans on behalf of a residential mortgage backed securitization (RMBS) investor.
- Developed a class-wide damage model arising from suitability claims against an investment bank.
- Provided expert testimony in support of class certification on behalf of residential mortgage backed securitization (RMBS) holders.
- Analyzed market efficiency in support of fairness and solvency opinions related to shares of publicly traded companies in the energy sector.
- Prepared event studies and damages analyses based on various share matching (LIFO, FIFO, offsets) and account consolidation conventions on behalf of security holders evaluating class action opt outs.
- Analyzed trading activity and valuations of restricted and unrestricted shares associated with an alleged pump-and-dump scheme following a reverse merger.
- Provided expert opinions and rebuttal of opposing expert analysis regarding share price inflation damages on behalf of an Australian industrial conglomerate involved in a shareholder class action lawsuit.
- Served as a testifying expert in an arbitration matter involving the liquidation of margin positions.
- Provided economic and statistical analysis of loan collateral characteristics, performance, and alleged misrepresentations associated with residential and commercial mortgage-backed securities on behalf of multinational financial institutions and investors.
- Developed econometric models to establish relationships between crude oil futures and options prices and numerous industrial, financial, and macroeconomic variables in a securities class action lawsuit.
- Provided expert testimony on the valuation of a healthcare services company.
- Served as a consulting expert for government agencies in negotiations of multibillion-dollar settlements involving the origination, sale, and securitization of residential mortgages.
- Negotiated the value of residual interests in Canadian mortgage-backed securities on behalf of the bankrupt sponsor based on econometric models and Monte Carlo simulations used to predict future cash flows from individual mortgages.

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- Provided expert opinions the solvency of a debtor subsidiary in the telecom industry facing fraudulent transfer allegations.
- Analyzed the economic merits of civil penalties assessed by the U.S. SEC related to the sale of restricted stock.
- Assessed the appropriateness of certain private equity investments related to the investment policy statement of a family limited partnership.
- Evaluated the economic merits of breach of fiduciary duty claims related to options trading strategies in a jointly-held investment account.
- Quantified share price inflation damages on behalf of an Australian contracting and development company involved in a shareholder class action lawsuit.
- Evaluated share price inflation allegations against an Australian real estate investment trust and quantified damages based on multiple share purchase matching approaches and detailed trading data in a shareholder class action lawsuit.
- Analyzed plaintiff and defendant shareholder damages models related to claims against an Australian commodities company in a shareholder class action lawsuit.
- Investigated quantitative methods used to value the structured credit portfolios of a global investment and insurance company.
- Advised a major U.S. bank on the write-down of its structured finance portfolio.
- Quantified share price inflation and corresponding damages based on allegations against an Australian gaming corporation in a shareholder class action lawsuit.
- Analyzed the effects of management representations on a U.S. technology firm's share price in a shareholder class action lawsuit.
- Examined the impact of accounting scandal revelations on the share price of a U.S. media firm in a shareholder class action lawsuit.
- Constructed a Monte Carlo simulation to estimate the value of performance-based incentives in the UK media industry.

ANTITRUST AND REGULATION

- Provided expert testimony on relevant market definitions, market power, and vertical restraints of competition on behalf of a manufacturer in a case involving allegations of market foreclosure.
- Quantified damages on behalf of a plaintiff class alleging overcharges on purchases of accessory items.
- Provided expert opinions in support of class certification in a case involving alleged overcharges of building materials.
- Quantified the impact of price artificiality associated with alleged market manipulations in crude oil futures and options markets.
- Assessed the impact of monopolization claims on prices in the European automobile parts market.

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PARTNER

- Evaluated monopolization claims in the market for remanufactured printer cartridges.
- Analyzed the price impact of alleged false advertising claims in the market for fruit juices.
- Assisted a European competition authority in a review of its financial services sector based on event studies used to estimate the effect of firm entry on lending rates.
- Examined the impact of competition policies on the personal banking sector in a national European market based on quantitative analysis of current account activity associated with major banks.
- Analyzed the impact of a UK pharmaceutical firm's alleged predatory pricing behavior on sales of its primary competitor.
- Quantified the impact of regulatory and commercial changes on a portfolio of media and gambling rights in the UK.
- Developed an industrial analysis framework used to evaluate competitive drivers across several manufacturing sectors for purposes of valuing a European manufacturing firm.

INTELLECTUAL PROPERTY

- Provided testimony rebutting an opposing expert's lost profits calculations arising from claims of intellectual property infringement, trade secret misappropriations, tortious interference and other allegations.
- Led the analysis of reasonable royalty damages on behalf of more than 150 defendants alleged to infringe a single patent covering widely-used website features related to geographic location services.
- Provided expert testimony regarding the economics of contractual royalty calculations on behalf of a U.S. communications company.
- Served as a testifying expert on behalf of a consulting firm seeking damages arising from alleged misappropriations of trade secrets.
- Assessed the merits of trade secret misappropriation claims against a global energy services company.
- Evaluated reasonable royalty claims associated with alleged U.S. patent infringements related to numerous technologies, including:
 - Telephony and cellular network;
 - Network architecture;
 - Hardware and software technology;
 - Digital media;
 - Remote access technologies;
 - Power converter architectures;
 - E-commerce;
 - Garments and apparel;
 - Automotive parts;
 - Food processing;

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- Methods for check payment processing;
- Geographic location services; and
- Oil and gas exploration.
- Advised patent holders on strategic opportunities and licensing strategy for purposes of monetizing patent portfolios in the network technology and electronic storage industries.
- Computed lost profits, unjust enrichment, and reasonable royalty damages arising from theft of trade secrets claims brought by a specialized provider of electronic components against former employees.
- Assessed damages associated with contingency fee agreements between a law firm and former client arising from the settlement of a patent litigation lawsuit.
- Analyzed lost profits damages arising from patent infringement claims covering a wide range of network, software, and industrial applications.
- Composed a series of intellectual property valuations submitted to European tax authorities on behalf of a global steel manufacturer.
- Assessed the economic merits of an injunction claims against a major provider of rail track inspection services.
- Evaluated price erosion claims on behalf of defendants accused of patent infringement in industrial applications.
- Assessed damages arising from trade secret claims involving tens of millions of transactions in the freight industry.
- Evaluated damages arising from trademark infringement claims against companies in the financial services, technology, and automotive industries.

COMMERCIAL LITIGATION AND INVESTIGATIONS

- Designed sampling procedures and advised on statistical inferences drawn from samples used in numerous fraud investigations, accounting reviews, and class certification analyses.
- Provided expert opinions based on statistical and econometric models used to evaluate employee allegations of discrimination under U.S. Title VII.
- Led the sampling, investigation, and extrapolation of results from transaction data retrieved from various accounting systems for purposes of identifying unreported IT costs in a breach of contract dispute involving a major U.S. hospital network.
- Provided expert opinions on lost wages associated with an alleged wrongful termination of a public services officer.
- Assessed damages associated with contingency fee agreements between a law firm and former client arising from the settlement of a patent litigation lawsuit.
- Constructed a series of econometric and financial models used to evaluate breach of contract claims in the freight and shipping industry based on the analysis of tens of millions of individual shipping records.
- Quantified the effects of a U.S. publicity scandal on Japanese sales of celebrity-sponsored products based on a quantitative analysis of sales data, controlling for numerous macroeconomic factors.
- Analyzed the forgone acquisition value of a UK retailer due to an alleged breach of fiduciary duty.

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PARTNER**TURNAROUND AND RESTRUCTURING**

- Assisted a regional hospital in preparing for Chapter 11 proceedings.
- Implemented a weekly cash projection process and advised on working capital strategies that enabled a U.S. manufacturer to operate within its asset-based facility.
- Managed the implementation of financial models and weekly cash management processes on behalf of a U.S. metals distributor.
- Developed a series of integrated financial models that enabled a public U.S. technology firm to evaluate restructuring opportunities and secure long-term and short-term funding.
- Implemented a short-term cash management tool and monthly strategic model for a private equity portfolio company
- Developed cash forecast and liquidation models on behalf of creditors of a U.S. metal fabricator.
- Assisted a U.S. hospital operator in developing financial plans used to secure additional funding.
- Estimated the impact of an audit firm's alleged misrepresentations on the unsecured claims against a U.S. company's bankrupt estate.
- Quantified the value of life insurance and executive benefit claims against a U.S. bankruptcy estate based on various actuarial assumptions.
- Advised on the reliability of a U.S. distributor's financial model and business plan based on a series of financial and statistical tests.
- Negotiated the settlement of numerous claims on behalf of a U.S. bankruptcy estate.
- Managed bankruptcy proceedings on behalf of a regional U.S. electronics chain.

BUSINESS ADVISORY AND CORPORATE FINANCE

- Designed econometric models to measure revenue impacts of product placements for a global consumer product company.
- Advised a U.S. freight company on the design and implementation of financial and economic forecasting tools.
- Designed sampling procedures to optimize new sporting goods product tests given limited access to college-level athletes.
- Identified demand drivers for an equipment manufacturer based on econometric analyses of distribution channels and inventory levels.
- Developed a comprehensive IT framework that enabled a U.S. manufacturer to project short-term borrowing requirements in a consolidated database/ERP system.
- Designed weekly cash management and monthly financial reporting tools for multiple private equity portfolio companies in the marketing and broadcast industries.

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PARTNER

- Managed numerous projects for a public U.S. technology firm, including: product pricing and bundling analysis, development of operational metrics, and the redesign of the commission structure.
- Designed and implemented automation tools used in numerous business planning and reporting applications for clients in the retail, shipping, and manufacturing sectors.
- Advised a commercial real estate client on the sale of a major U.S. shopping mall.

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Indiana Public Retirement System, et al. v. Michael T. Cartwright, et al.

Appendix B - Information Considered

Court Documents:

- (1) Consolidated Complaint for Violations of the Securities Exchange Act of 1934, dated Nov. 4, 2019
- (2) Voluntary Petition for Non-Individuals Filing for Bankruptcy, *In re AAC Holdings, Inc.*, (Bankr. De. Jun. 20, 2020) ECF No. 1
- (3) Memorandum Opinion, dated Apr. 8, 2021

Analyst Reports:

- (1) 2017-02-06 Avondale Partners COO Departure Appears to be Part of a Bigger Plan.pdf
- (2) 2017-02-28 Avondale Partners 4Q16 Initial Take.pdf
- (3) 2017-02-28 William Blair First Look at In-Line Fourth-Quarter Results and 2017 Outlook.pdf
- (4) 2017-02-28 William Blair Updating Model Following Fourth-Quarter Results.pdf
- (5) 2017-03-01 Avondale Partners Expect Trends to Improve in 2017; Remain Buyers at Cur....-77524266.pdf
- (6) 2017-03-02 Avondale Partners Avondale Morning Meeting Note-77535595.pdf
- (7) 2017-05-03 William Blair Solid Start to 2017; Full-Year Guidance M....-78170092.pdf
- (8) 2017-05-04 Raymond James Decent Income Statement, but Those DSOs.pdf
- (9) 2017-05-05 Raymond James DSOs Expected to Improve Following One-Time Mishaps.pdf
- (10) 2017-05-05 William Blair Updating Model Following First-Quarter Re....-78198889.pdf
- (11) 2017-06-01 Raymond James No Financial Impact Expected From Sunrise Disruption.pdf
- (12) 2017-07-05 William Blair Updating Model Following Debt Refinancing-78752607.pdf
- (13) 2017-08-02 William Blair First Look at Solid Second-Quarter Result....-79091797.pdf
- (14) 2017-08-03 Raymond James Elevated DSOs Overshadow P&L Beat.pdf
- (15) 2017-08-04 William Blair Updating Model Following Second-Quarter R....-79124504.pdf
- (16) 2017-08-07 Raymond James Clear Progress-Setup Has Improved Assuming Consistent Execution.pdf
- (17) 2017-08-09 Cantor Fitzgerald Initiating with an Overweight and \$11 Price Target-79175410.pdf
- (18) 2017-08-10 Cantor Fitzgerald Cantor Daily Research Highlights-79184297.pdf
- (19) 2017-09-13 Cantor Fitzgerald Acquiring A Leading New England Provider; Raising PT to \$14;...-79478207.pdf
- (20) 2017-09-13 William Blair Announces Acquisition of AdCare; Further Diversifies Payer M....-79477711.pdf
- (21) 2017-09-15 Raymond James AdCare's Effective Multiple a Full Turn Below Company.pdf
- (22) 2017-09-27 Cantor Fitzgerald Quick Takeaways From Our Healthcare Conference Presentation-79578373.pdf
- (23) 2017-10-02 Cantor Fitzgerald Takeaways from the Cantor Healthcare Conference Healthcare ...-79613341.pdf
- (24) 2017-11-01 Cantor Fitzgerald 3Q17 Upside, But No Change in Guidance; DSO Continue to Impr....-79936719.pdf
- (25) 2017-11-01 William Blair Strong Third-Quarter Results Highlighted by Material Sa....-79937622.pdf
- (26) 2017-11-02 Cantor Fitzgerald Another Very Good Quarter; Tweaking Estimates; Reiterating \$....-79952252.pdf
- (27) 2017-11-02 Raymond James Strong 3Q, 2017 Guidance Unchanged Implying Weak 4Q.pdf
- (28) 2017-11-03 Raymond James Upgrade to Outperform with \$14 Price Target.pdf
- (29) 2017-11-10 William Blair Final Model Adjustments Following the 10-Q Filing-80053854.pdf
- (30) 2017-11-13 Cantor Fitzgerald CFO Succession in the Works for Awhile-80071937.pdf
- (31) 2017-11-16 Cantor Fitzgerald Driving Growth Boosting Census, Adding AdCare; Reiterating ...-80108023.pdf
- (32) 2018-01-05 Cantor Fitzgerald AAC Settling Shareholder Litigation; AdCare Proceeding, No C....-80480351.pdf
- (33) 2018-02-20 Cantor Fitzgerald Healthcare Facilities Services; Earnings This Week ACHC, ...-80971394.pdf
- (34) 2018-02-21 Cantor Fitzgerald Upbeat 4Q17 on Higher Revenue, Census; First look at 2018; C....-80988713.pdf
- (35) 2018-02-21 William Blair Solid End to the Year, Good 2018 Outlook; Research Stud....-80990122.pdf
- (36) 2018-02-22 Raymond James Turn Around, 2018 EBITDA Guidance Well Above Street.pdf
- (37) 2018-02-22 Cantor Fitzgerald 4Q17 Review; AdCare Closing Soon; Revising 2018 Outlook; Rei....-81001649.pdf
- (38) 2018-02-23 Raymond James If You Build It They Will Come.pdf
- (39) 2018-02-23 William Blair Finalizing Estimates Following Strong Fourth-Quarter Re....-81014515.pdf
- (40) 2018-03-02 Raymond James Management Bags a Marlin (AdCare).pdf
- (41) 2018-03-06 William Blair AAC Increasing Estimates Following AdCare Acquisition-81120462.pdf
- (42) 2018-03-26 Raymond James Update on AAC D&O Insurance Saga.pdf
- (43) 2018-04-24 Cantor Fitzgerald Healthcare Facilities Services 1Q18 Outlook; Favorite is A....-81591688.pdf
- (44) 2018-05-02 Cantor Fitzgerald 1Q18 Upside on Higher Volumes and Rates, Aided by Acquisitio....-81715481.pdf
- (45) 2018-05-02 William Blair Strong Execution Drives Solid Start to the Year; AdCare....-81715195.pdf
- (46) 2018-05-02 Raymond James Strong 1Q Print.pdf
- (47) 2018-05-03 Cantor Fitzgerald 1Q18 Slight Upside, Raising Estimates; Diversifying Payor Mi....-81730717.pdf
- (48) 2018-05-03 Raymond James Ramping Marketing Engine to Drive Occupancy Higher.pdf
- (49) 2018-05-13 Cantor Fitzgerald 2018-19 Outlook Stronger Strategy, Management and Systems; ...-81839180.pdf
- (50) 2018-06-14 William Blair Healthcare Services and HCIT Highlights from William Blair....-82110687.pdf

Indiana Public Retirement System, et al. v. Michael T. Cartwright, et al.

Appendix B - Information Considered

- (51) 2018-08-01 Raymond James Revenue Beat, EBITDA Miss.pdf
- (52) 2018-08-01 Cantor Fitzgerald 2Q18 Looks a Little Light, but AAC Maintains Its Full-Year G...-82574221.pdf
- (53) 2018-08-01 William Blair Mixed Quarter Highlighted by 27 Revenue Growth; Labor ...-82574900.pdf
- (54) 2018-08-02 Cantor Fitzgerald 2Q18 Mixed, Guidance Unchanged, But Challenging; Reit. \$14 P...-82588437.pdf
- (55) 2018-08-03 Raymond James 2H EBITDA Lift Looks Heavy on the Surface.pdf
- (56) 2018-09-29 Watchdog AAC.pdf
- (57) 2018-10-01 Raymond James Is the Marketing Engine Struggling.pdf
- (58) 2018-10-16 Raymond James Blame the Google-Lowering Estimates and Price Target.pdf
- (59) 2018-10-16 William Blair Although Difficult to Define, Google Algorithm Change M...-83155258.pdf
- (60) 2018-11-06 Raymond James The Good, The Bad and The AAC.pdf
- (61) 2018-11-06 Cantor Fitzgerald Cutting Estimates on Soft Census, Reduced Outlook; PT to \$4,...-83409341.pdf
- (62) 2018-11-06 Cantor Fitzgerald Lower Census Hits 3Q18, Reduces 2018 Outlook, Stock Down Bef...-83403764.pdf
- (63) 2018-11-06 William Blair First Take on Third-Quarter Results; As Anticipated, Ce...-83404379.pdf

Media Reports:

- (1) "DJ AAC Holdings Inc, Inst Holders, 4Q 2016 (AAC)," *Factiva*, Jan. 20, 2017
- (2) "AAC Holdings Files 8K - Changes Exec Mgmt >AAC," *Factiva*, Feb. 3, 2017
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Exhibit 1
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Summary of Release Days

Actual Release Date	Timing	Tested Release Date	AAC Log Return	Abnormal Log Return	Significance		Description	Notes
					10% Level	5% Level		
5/3/2017	After Close	5/4/2017	7.4%	7.9%	✓	✓	Earnings Announcement: Revenue: \$73.0 million actual vs. \$71.8 million consensus (1.7% over) Adjusted EBITDA: \$12.7 million actual vs. \$11.4 million consensus (11.4% over) Adjusted EPS: \$0.12 actual vs. \$0.05 consensus (140.0% over) A strongly positive abnormal return is consistent with consensus-beating financials. AAC significantly beat revenue, adjusted EBITDA, and adjusted EPS expectations.	(1)
8/2/2017	After Close	8/3/2017	18.5%	19.3%	✓	✓	Earnings Announcement: Revenue: \$78.0 million actual vs. \$73.4 million consensus (6.3% over) Adjusted EBITDA: \$14.5 million actual vs. \$12.6 million consensus (15.1% over) Adjusted EPS: \$0.26 actual vs. \$0.12 consensus (116.7% over) A strongly positive abnormal return is consistent with consensus-beating financials. AAC significantly beat revenue, adjusted EBITDA, and adjusted EPS expectations.	(2)
11/1/2017	After Close	11/2/2017	28.3%	27.9%	✓	✓	Earnings Announcement: Revenue: \$80.4 million actual vs. \$74.5 million consensus (7.9% over) Adjusted EBITDA: \$14.9 million actual vs. \$11.6 million consensus (28.4% over) Adjusted EPS: \$0.12 actual vs. \$0.05 consensus (140.0% over) A strongly positive abnormal return is consistent with consensus-beating financials. AAC significantly beat revenue, adjusted EBITDA, and adjusted EPS expectations.	(3)
2/21/2018	After Close	2/22/2018	6.9%	7.7%	✓	✓	Earnings Announcement: Revenue: \$86.1 million actual vs. \$72.8 million consensus (18.3% over) Adjusted EBITDA: \$15.1 million actual vs. \$11.8 million consensus (28.0% over) Adjusted EPS: \$0.10 actual vs. \$0.04 consensus (150.0% over) A strongly positive abnormal return is consistent with consensus-beating financials. AAC significantly beat revenue, adjusted EBITDA, and adjusted EPS expectations.	(4)
3/1/2018	Before Open	3/1/2018	2.3%	3.6%			Earnings Revision: Management provides updated guidance for 2018 based on the completion of the Adcare acquisition. The acquisition was announced in September of 2017 and was subject to regulatory approval. The resulting abnormal return is not statistically significant.	(5)
5/2/2018	After Close	5/3/2018	-3.7%	-2.6%			Earnings Announcement: Revenue: \$78.5 million actual vs. \$72.8 million consensus (7.8% over) Adjusted EBITDA: \$15.1 million actual vs. \$14.5 million consensus (4.1% over) Adjusted EPS: \$0.13 actual vs. \$0.12 consensus (8.3% over) AAC outperformed consensus analyst expectations although the earnings surprise was substantially lower than previous quarters. The resulting abnormal return is not statistically significant.	(6)
8/1/2018	After Close	8/2/2018	-11.4%	-12.8%	✓	✓	Earnings Announcement: Revenue: \$86.8 million actual vs. \$82.8 million consensus (4.8% over) Adjusted EBITDA: \$14.8 million actual vs. \$17.3 million consensus (-14.5% under) Adjusted EPS: \$0.09 actual vs. \$0.18 consensus (-50.0% under) A strongly negative abnormal return is consistent with results that substantially missed adjusted EBITDA and adjusted EPS expectations.	(7)

Exhibit 1

Indiana Public Retirement System, et al. v. Michael T. Cartwright, et al.

Summary of Release Days

Sources and Notes:

Earnings release dates and timing of releases based on AAC's 10-Ks, 8-Ks, earnings call transcripts and Capital IQ database.

- (1) See William Blair & Co., "Solid Start to 2017; Full-Year Guidance Maintained," May 03, 2017, at p. 1.
- (2) See William Blair & Co., "First Look at Solid Second-Quarter Results; Guidance Maintained," August 02, 2017, at p. 1.
- (3) See William Blair & Co., "Strong Third-Quarter Results Highlighted by Material Sales, EBITDA Upside; Guidance Maintained," November 01, 2017, at p. 1, and Cantor Fitzgerald, "3Q17 Upside, But No Change in Guidance; DSO Continue to Improve; Call Tomorrow," November 01, 2017, at p. 1.
- (4) See William Blair & Co., "Solid End to the Year, Good 2018 Outlook; Research Study Shows Favorable Outcomes at AAC Facilities," February 21, 2018, at p. 1, and Cantor Fitzgerald, "4Q17 Review; AdCare Closing Soon; Revising 2018 Outlook; Reit. OW, \$14 PT," February 22, 2018.
- (5) See press release dated March 01, 2018, "AAC Holdings Completes Acquisition of AdCare, Inc." See also, Cantor Fitzgerald, "Acquiring A Leading New England Provider; Raising PT to \$14; Reit. OW Rating," September 13, 2017, at p. 1; William Blair & Co., "Announces Acquisition of AdCare; Further Diversifies Payer Mix and Referral Streams," September 13, 2017, at pp. 1,2; and Cantor Fitzgerald, "4Q17 Review; AdCare Closing Soon; Revising 2018 Outlook; Reit. OW, \$14 PT," February 22, 2018, at p. 1.
- (6) See William Blair & Co., "Strong Execution Drives Solid Start to the Year; AdCare Acquisition Further Diversifies Business, Lowers Risk Profile," May 02, 2018, at p. 1, and Cantor Fitzgerald, "1Q18 Upside on Higher Volumes and Rates, Aided by Acquisition of AdCare," May 02, 2018, at p. 1.
- (7) See William Blair & Co., "Mixed Quarter Highlighted by 27% Revenue Growth; Labor Cost Pressure Drives EPS Miss," August 01, 2018, at p. 1, and Cantor Fitzgerald, "2Q18 Looks a Little Light, but AAC Maintains Its Full-Year Guidance, Call in AM," August 01, 2018.